

A7 inward to direct fluid fed to the center portion of the sealing of the rotor face by the orifices simultaneously both inwardly and outwardly from the center portion of the sealing face of the rotor.

58. (Once Amended) The assembly of claim 56 in which the feeding orifices are disposed in a feeding groove formed in the sealing face of the rotor or stator.

AS6 66. (Once Amended) The rotary face seal assembly of claim 56 in which the sealing face of the rotor has the pumping grooves.

A9 77. (Once Amended) The rotary face seal assembly of claim 76 in which there is a gap between the holder and the stator responsive to system pressure which overcomes the spring at a predetermined level.

A marked up version of the claims showing the above amendments is attached herewith.

REMARKS

The applicants appreciate the Examiner's thorough examination of the application and requests reexamination and reconsideration of the application in view of the preceding amendments and the following remarks.

The Examiner rejects claims 1-55, 57- 64, 66, 72 and 77 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly

claim the subject matter being which applicant regards as the invention. The applicant has amended claims 1-2, 15-17, 19-20, 26-27, 29-30, 55, 57-58, 66 and 77 to overcome the Examiner's objections; specifically, to correct antecedent basis issues. Applicant believes that claim 72 has a proper antecedent basis, and accordingly has not amended claim 72.

The Examiner rejects claims 1-4, 8-17, 19-20, 22-23, 30, 34-43, 45-46 and 48-49 under 35 USC § 102(b) as being anticipated by German Patent No. 3,819,566 (DE '566)

The applicant's invention is directed to A rotary seal assembly comprising a first member having a sealing face and a second member having a sealing face with a number of pumping grooves therein, at least a first set of pumping grooves starting proximate a center portion of the sealing face of said second member and extending outward and at least a second set of pumping grooves starting proximate the center portion of the sealing face of said second member and extending inward to direct fluid fed to the center portion of the sealing face simultaneously both inwardly and outwardly from the center portion of the sealing face of said second member to provide a uniform fluid film thickness between the sealing faces of the first and second members when one sealing face cones due to thermal and/or pressure effects.

DE '566 fails to "provide a uniform fluid film thickness between sealing faces of the first and second members when one sealing face comes due to thermal and/or pressure effects" as claimed in independent claims 1 and 30 of the subject application.

Accordingly, claims 1 and 30 and their respective dependant claims, are not anticipated by DE '566.

The Examiner rejects claims 1-4, 8-9, 11-20, 22-23, 30, 34-35, 37-46 and 48-49

under USC § 102(e) as being anticipated by U.S. Patent No. 6,213,473. *Lebeck* is directed a double gas seal with coplanar pad faces. However, *Lebeck* fails to disclose all of the elements of the claimed invention. Specifically, *Lebeck* fails to disclose a first set of pumping grooves extending outward and a second set of pumping grooves extending inward, as claimed in independent claims 1 and 30.

The pumping grooves 94, 96 of *Lebeck* are circumferentially spaced. See Col. 5, lines 61-64 and Figs. 4 and 5 of *Lebeck*. *Lebeck* clearly discloses that pumping grooves run with the circumference of the rotor 40. However, the pumping grooves of the present invention extend inward and outward from the center portion of the sealing face. This difference can be clearly seen in comparing/contrasting Fig. 3 of the subject application with Figs. 4 and 5 of *Lebeck*.

Accordingly, as *Lebeck* fails to disclose a first set of pumping grooves extending outward and a second set of pumping grooves extending inward as claimed in independent claims 1 and 30, claims 1 and 30, and their respective dependant claims are not anticipated by *Lebeck*.

The Examiner rejects claims 5-7 and 31-33 under 35 USC § 103(a) as being unpatentable over DE '566. For at least the reasons set forth above, independent claims 1 and 30 are patentable over DE '566. Accordingly, dependant claims 5-7 and 31-33 are patentable over DE '566 for at least those reasons.

The Examiner rejects claims 21, 24-25, 47 and 50-51 under 35 USC § 103(a) as being unpatentable over *Lebeck*. For at least the reasons set forth above, independent claims 1 and 30 are patentable over *Lebeck*. Accordingly, dependant claims 21, 24-25, 47 and 50-51 are patentable over *Lebeck* for at least those reasons.

The Examiner rejects claims 26, 28, 52 and 54 under USC § 103 (a) as being unpatentable over *Lebeck* in view of U.S. Patent No. 3,751,045 to *Lindeboom*. For at least the reasons set forth above independent claims 1 and 30 are patentable over *Lebeck*. Dependent claims 26, 28, 52 and 54 are also patentable over *Lebeck* for at least those reasons. Accordingly, claims 26, 28, 52 and 54 are patentable over *Lebeck* in view of *Lindeboom*.

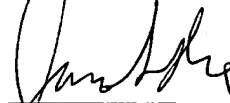
The Examiner rejects claims 1, 29-30 and 55-75 under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,609,342, *Peterson* in view of *Lebeck*. The Examiner states that *Peterson* discloses a rotary face seal assembly comprising a stator having a sealing face and a rotor having a sealing face. The Examiner notes that *Peterson* does not disclose grooves which are partitioned into first and second sections. Nor does *Peterson* disclose a first set of pumping grooves starting proximate a center portion of the sealing face and extending outward and at least a second set of pumping grooves starting proximate the center portion of the sealing face and extending inward. As stated above, *Lebeck* also fails to disclose this feature. Accordingly, claims 1, 29-30 and 55-75 are patentable over *Peterson* in view of *Lebeck*.

Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts,

(781)890-5678.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jason D. Shanske", written over a horizontal line.

Jason D. Shanske

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